電動起子控制器操作手冊

OPERATION AND MAINTENANCE MANUAL

■SKP-BC32HL-100N

(In: AC 100~240V Out: DC 24V / 32V)

奇力速工業股份有限公司

KILEWS INDUSTRIAL CO., LTD.

http://www.kilews.com

Y2F077-1-004

NOTICE

Metal Assembly Screwdrivers are designed for installing threaded fasteners in light industrial and appliance manufacturing applications.
KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.

WARNING

Important safety information enclosed.
Read all these instructions before placing tool in service or operation this tool and save these instructions. It is the responsibility of the employer to place the information in this manual into the hands of the operator. Failure to observe the following warnings could result in injury. When using electric tools, Basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following:

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Important Safety Instructions

WARNING! Read all instructions Failure to follow all instructions listed below may result in electric shock fire and/or serious injure. The term “power tool” in all of the warning listed below refer to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

1) Electrical Safety

a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.

b) **Do not operate power tools in explosive atmosphere, such as in the presence of flammable liquids, gases or dust.** Power tools creat sparks which may ignite the dust of fumes..

c**) Keep children, and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) Electrical Safety

a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools**. Unmodified plugs and matching outlets will reduce risk of electric shock.

b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.

c) **Don’t expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

d) **Do not abuse the cord. Never use the cord to carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.

e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of cord suitable for outdoor use reduces the risk of electric shock .

3) Personal Safety

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use power tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

d) **Remove any adjusting keys or wrench before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.

e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair,clothing, and gloves away from moving parts.** Loose clothes, jewellery, or long hair can be caught in moving parts

g) **If devices are provided for the connection of dust extraction and collection facilitys, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.

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4) Power tool Use and Care

a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.

b) **Do not use power tool if switch does not turn it on or off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) **Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are cause by poorly maintained power tools.

f) **Keep cutting tools sharp and clean**, Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) **Use the power tools, accessories and tool bits ect., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from intended could result in a hazardous situation.

5) SERVICE

a) **Have your power tool serviced by qualified repair person using only indentical replacement parts**, This will ensure that the safety of the power tool is maintained.

Additional information shall be provide

a) Instruction for putting into use
   1. Setting-up or fixing power tool in a stable position as appropriate for power tools which can be mounted on a support.
   2. Assembly
   3. Connection to power supply, cabling, fusing, socket type and earthing requirements.
   4. Illustrated description of functions.
   5. Limitations on ambient conditions.
   6. List of contents.

b) Operating Instructions.
   1. Setting and testing.
   2. Tool changing.
   3. Clamping of work.
   4. Limits on size of work piece.
   5. General instructions for use.

c) Maintenance and servicing.
   1. Regular cleaning, maintenance, and lubrication.
   2. Servicing by manufacture or agent, list of addresses.
   3. List of user-replaceable parts.
   4. Special tools which may be required.

Operations Cautions

1. Please read the operating manual thoroughly and comply with safety regulation to operate this Multi-Function Controller.
2. Please grasp the plug of power cord while plugging in or out the plugs of connecting cord of Electric Screwdriver and power cord.
3. Please fix the power controller to avoid any danger of pulling and dragging the power cord.
4. Do not near oil, chemical materials or heated objects, also please be alert not to scratch the power cord by sharp object.
5. This type of Controller can only be applied to Kilews Electric Screwdriver with Counter. Do not use Electric Screwdriver Controller on other types of machinery.
6. In case of the Controller is overheated or overloaded with maximum current rating of fuse, the high-speed fuse will be melt down and cut off the power. If the Controller continues to jump off or has an abnormal switching reaction, please stop the operation immediately and send back the Controller for repair.
7. When Electric Screwdriver is running, if slides Forward/Reverse Switch instantly, device will generate the protection program to force Electric Screwdriver stop.
8. Please do not disassemble Electric Screwdriver casually and try to repair it by self.
9. When Controller is not in use, please turn the main power switch OFF and unplug the power.
10. The electric frequency will be lower when the voltage is adjusted as Lo or below 32V,so the torque of the electric screwdrivers can't be worked out except below scale of 4.

CAUTION

- ∗ Please arrange to use the whole set of Electric Screwdriver SKD-BC series except SKD-BC100 series with the Multi-Function Controller.
- ∗ Please arrange to use together with Kilews SKD-BC series Electric Screwdriver. If operator uses different brand of Electric Screwdriver and repair tools with parts or accessories not from Kilews manufacturer, it may cause the Controller malfunction or poor quality. As a result, all of product guarantees will be void and no obligation to the manufacturer.
- ∗ When Electric Screwdriver is running, if operator slide Forward/Reverse switch instantly, device will turn on the protection program to force the Electric Screwdriver stop running.
- ∗ Don't swtich HI/LO changeover button when the screwdriver running.
- ∗ To plug or unplug the DC connector must wait the LED OFF after power off.

Main Technical parameters

Model No	SKP-BC32HL-100N
Input Voltage	AC 100~240V 50/ 60HZ
Output Voltage	DC 32/ 24V 1.875A
Power Consumption	60W
Counting Numbers	1~99
Counting Method	Count forward / Count backward
Connecting Sensor	ON / OFF
Sensing Switch Mode	ON (2 Sensor) / OFF (1 Sensor)
Slow-Start Time Adj.	0.1~9.9 seconds
Slow-Start Speed Adj.	35%~85% L0~L9 Rated speed
Stop Detecting Time (Lower limit)	0.01~9.90 seconds
Stop Detecting Time (Upper limit)	0.1~9.9 seconds
Disqualification Detecting Alarm	On/ Off/ FF/ EF with LED Light and Buzzer
Auto response/Manual response	ON / OFF
External Connection Input	Confirm key / Reset Key AffirmativeAffirmativeswitch/recovery switch
External Connection Output	OK / NG / OK ALL
Electric Screwdriver Speed Control	HI / LO；Slow Start
Size(mm)	200 *130*100
Weight(Kg)	1.57
Applicable Electric Screwdrivers	SKD-BC512LF；SKD-BC512PF SKD-BC519L ； SKD-BC519P SKD-BC517LF；SKD-BC517PF
Accessories	Power cord*1

※SKP-BC32HL-100N must be used with SIX PIN screwdrivers , so please confirm the screwdriver's type is SKD-BC series and the connector is SIX PIN when using.

Step of the screwdriver confirmation:：

1、Confirm the sticker is 



"SKD-BC" type.

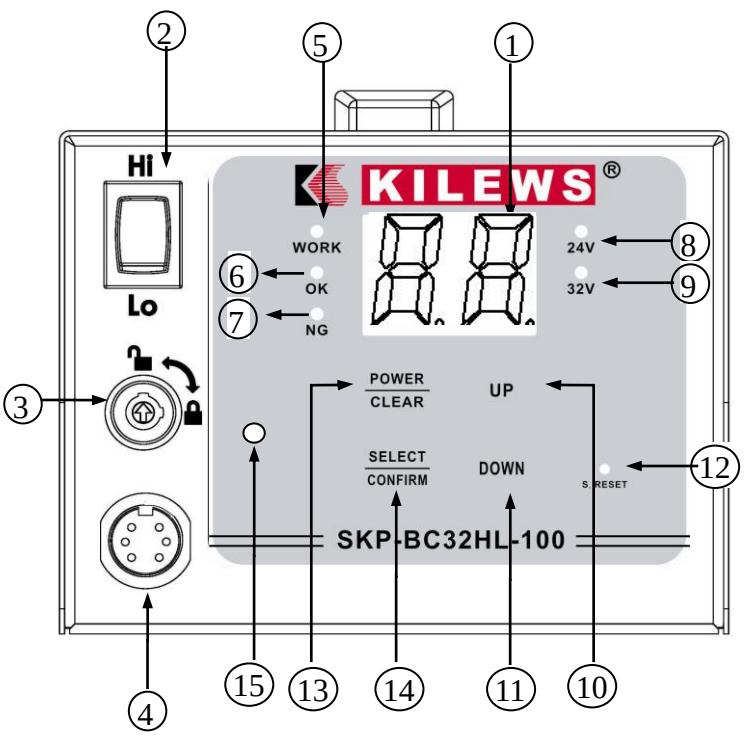
2、Confirm the screwdriver's CONNECTOR type is SIX PIN. 

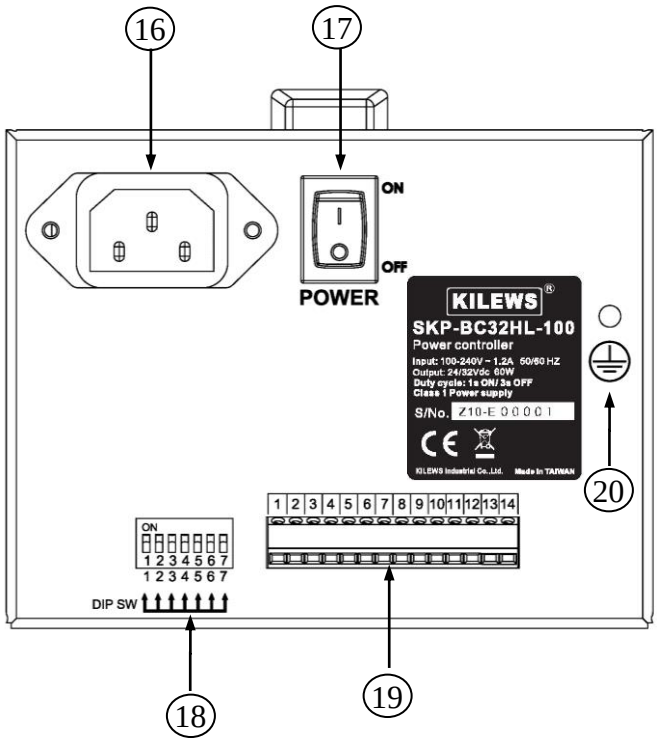
3、Confirm the connect cable between screwdriver and power controller is SIX wires.



Control panel specifications

NO.	Parts Name	NO.	Parts Name
1	LED Indicator	12	System Build-in Reset Key
2	HI / LO Speed Switch	13	POWER/CLEAR Key
3	Key setting lock	14	Functional Selection / Confirm Key
4	BC 6Pin Connector	15	Buzzer hole
5	WORK Light	16	Power point
6	OK Light	17	POWER SWITCH
7	N.G Light	18	I/O Inserting Hole ＊ Instruction
8	24V Light	19	Functional Dip Switch ＊ Instruction
9	32V Light	20	GND
10	Up-Selecting Key		
11	Down-Selecting Key		

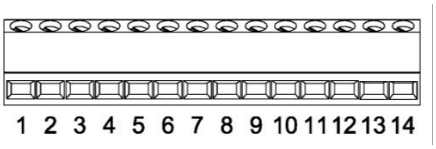




Functions of Keys on Panel：

Key	Description of function.	Remarks
POWER / CLEAR	POWER： **Power Switch** To press for Eight seconds, the system will be shut down and LED Display and WORK indicator light will be shut off. To return counting function under shutting down counter condition, push three seconds to open the counter. CLEAR： **Clear Switch** During counting, press this key for three seconds back to reset the counting.	
SELECT / CONFIRM	SELECT： To press this key Seven seconds any time will enter to system menu. That is: SL----- SC-----At------RC-----SP-----Ht-----Lt------LL-----CHECK CONFIRM： When DIP SW3 ON, reaching set up number , the system will request the operator to confirm.	Refer to CONFIRM mode
UP	UP： In system menu, pressing the key to increase the number. This key will point out user set-up number and unit during the process : U1： No.1 setting number. U2： No.2 setting number. U3： No.3 setting number. U4： No.4 setting number. U5： No.5 setting number.	
DOWN	DOWN： In system menu, pressing the key to decrease the number. This key will point out user set-up number and group during the process : U1： No.1 setting number. U2： No.2 setting number. U3： No.3 setting number. U4： No.4 setting number. U5： No.5 setting number.	
UP + DOWN	Up+Down： Select the following modes. On: When fastening screw, completing work and if mistaken operation, the buzzer sou d will be on. FF: ork completed and wrong operation will cause buzz. OF: Wrong operation will be buzzed. EF: As one screw is fastened and work is completed, buzzer will be on; wrong operation will be no sound.	
S. RESET	S.RESET：**SYSTEM RESET** Because of voltage or operation cause system abnormal , push this key back to the initial number.	
UP + SELECT / CONFIRM	LC: POWER / CLEAR + SELECT / CONFIRM + S. RESET — Lock key function Un: POWER / CLEAR + SELECT / CONFIRM + S. RESET — Unlock function	
	POWER / CLEAR + SELECT / CONFIRM + S. RESET — Unlock function	
	HL: POWER / CLEAR + SELECT / CONFIRM + S. RESET — Lock key function	

I/O Inserting Hole：

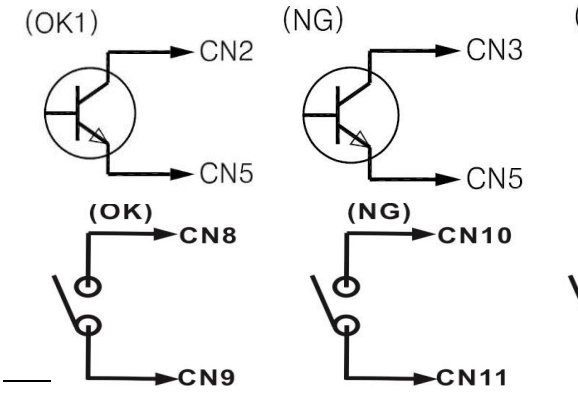


No	Name	In/Out	Content	wave pattern of signals	Remark
CN1	V+		DC12V		Device built-in output voltage DC12V
CN2	OK	Output	Output one signal after finishing one screwing job.	OFF ON	Auto start If operator needs to input voltage, please do not exceed DC 12V/ 10mA
CN3	NG	Output	Output one signal when having an erroneous operation	OFF ON	Auto start If operator needs to input voltage, please do not exceed DC 12V/ 10mA
CN4	OK ALL	Output	Output one signal after finishing the setting value of screw number count.	OFF ON	Auto start If operator needs to input voltage, please do not exceed DC 12V/ 10mA
CN5	COM		—		
CN6	GATE	Input	confirm switch for external connection	OFF：ON OFF ON：ON OFF ON OFF	Input one confirming signal which allows device to judge if the fastener is an effective value. Sensing switch: External connection switch for operation, allows to connect one or two switches. To connect any switch, it must be connected or linked with COM (CN5)
CN7	CLR	Input	CLEAR Switch for external connection	ON OFF	Clear remaining screws count number, available for the external connection of confirming switch. To connect any switch, it must be connected or linked with COM (CN5)
CN8、9	OK	Output			input voltage do not exceed ±60V / ±400mA
CN10、11	NG	Output			input voltage do not exceed ±60V / ±400mA
CN12、13	OK ALL	Output			input voltage do not exceed ±60V / ±400mA

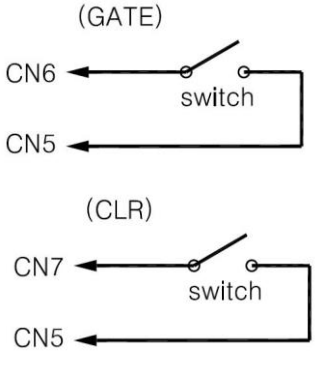
CN1(V+) and CN5(COM) can provide DC 12V
If users need different DC voltage, they must use their own step-down circuit to decrease voltage.
Terminal Connecting Diagram：

***If user need to input voltage to drive the alert instrument, do not use over DC12V 10mA voltage.**

Output:

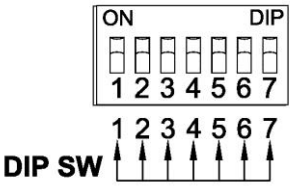


Input:



Functional Dip Switch：

SW	Name	OFF	ON
1	Counting Mode	Count Backward	Count Forward
2	Sensor Switch	Stop	Work
3	Manual Confirm Mold	Auto Zero	Start the Manual Confirmation
4	Switching Mode	Once Confirm	Twice Confirm
5	Auto Calculating Mode	Stop	Work
6	Units arrangement Mode	Stop	Work
7	Reverse resuming	only one screw count backward	Enable to count backward within the screws quantity setting



Instruction：

SW1: Selects ON, count forward screws number as 1-----2-----3------4------5----------1….
Selects Off, count backward the screws number as 5-----4-----3-----2------1----------5…

SW2: Sensing Switch, select ON means Counter needs external sensing switch, SKP-BC32HL-100N must be in accordance with the sensing switch mode to determine if electric screwdriver will work. Select OFF means unnecessary for external switch, count number don't have to consider external switch to determine if it works.

SW3: The Count number Reset Mode, when counting screws number reach to the setting value, counter must be reset to default value, if select ON which stands for manual reset, user must press "SELECT/CONFIRM" Key on the panel back the setting count number, otherwise Electric Screwdriver is unable to start under no confirming situation on the device. Select OFF makes system automatically to recover from the setting count number.

SW4: Switching Mode: Select ON means the external SENSOR need to have two signals been sent to SKP-BC32HL-100N which stands for the fastener on operational process need to go through the sensor on machine table to identify the fastener has been removed from working table, and new fastener goes through another SENSOR for confirming the new fastener that has reached the working table. Therefore two confirming signals allow SKP-BC32HL-100N to start the Electric Screwdriver running. Select OFF means only need one SENSOR to confirm the fastener that has been removed from this working table, this allows Electric Screwdriver starts to work.

CONFIRM ：

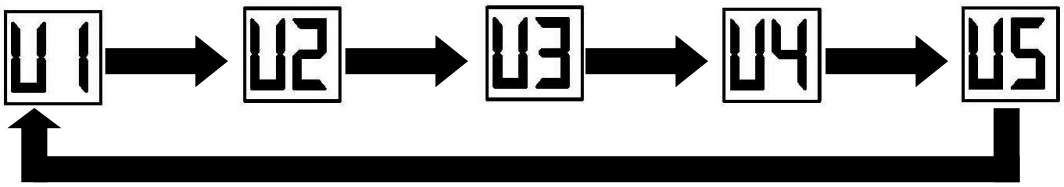
Code	Instruction	Notations
C1	Once confirm the external sensor.. SW2 (ON)+SW3(OFF)+SW4(OFF)	Output
C2	Twice confirm the external sensor. SW2 (ON)+SW3(OFF)+SW4(ON)	Output
C3	Manual confirm the panel . SW3 (ON)+SW2(OFF)+SW4(OFF)	Panel CONFIRM
C4	A switch SENSOR confirm + manual CONFIRM on the Panel SW2(ON)+SW3(ON)+SW4(OFF)	Output + Panel CONFIRM
C5	SW2(ON)+SW3(ON)+SW4(ON) Two switch SENSOR confirm + manual CONFIRM Panel SW2(ON)+SW3(ON)+SW4(ON)	Output+ Panel CONFIRM
CL	Reset to the default setting..	CLEAR

※ **The error when the screw fastened was occurred during the external mode confirmation, the system will detect the abnormal state. The LED will show error code and the buzzer wil ring. The operator must confirm the external sensor and press CONFIRM.**

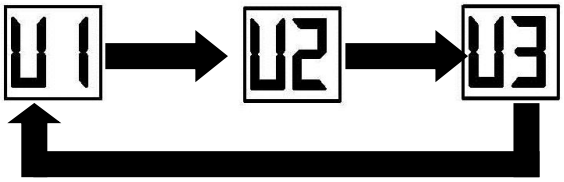
SW5: Auto-Learning Mode: The Counter counts screws number with the judging value OK & NG which is set up by Ht and Lt, this Auto-Learning Mode is completely using Electric Screwdriver to fasten screws practically, memorize the screwing time from beginning to complete fastening automatically, user can only change this switch to ON, then system will ask how many screws (SC) of the fastening position been required? If need auto response time setting (At) or if need to use the Slow-Start setting (Rc)?

SW6：Arrangement form: The memory can save five units number, user can push switch ON, the system will automatically arrange five units, easy for user to make arrangement at work.

SW7：Reverse Resuming：User can turn on the reverse resuming switch to loose screws back. The system is able to count backward for presetting quantity of screws to be fastened. If the reverse resuming switch is switched to off, the system is only to do countdown for the last screw.



※ If using three units of data only and let three units in cycles. It can set up "00" in counting number on U4, when SW6 switch ON, the system will automatically move in circle from U1~U3.



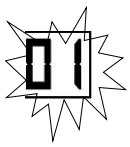
System setting

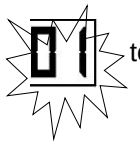
※Push three seconds to enter the selection SL====SC====At====RC====SP====Ht====Lt====LL <Confirm>

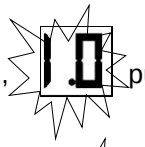
Function Name		Set up Time and Value	Description	Buzz Time/ Light	Manufacturer Set-Up Value
SL		01~05	Screw List	---	---
SC		01~99	Counting number / count-down only	---	05
At		0.1~9.9	Automatic zero time / Signal output time	---	1.0
RC		0.1~9.9	Slow start time	---	---
SP		L0~L9	Speed of start：30%-100% with rated L0~L9	---	L0
Ht		0.0~9.9	Ht time Stop time (Show wrong as screwdriver can't sop at set time after starting, can be used to test stripped screws	Five buzz and LED red flash	2.0
Lt		0.00~9.90	Lt time will show wrong as screwdriver stops before Lt after starting, can test screw is not properly fastened at its position. .	Two buzz and LED red flash	0.00
LL		0.01~9.90	Reconfirm time after fastening.	---	0.00
Backward to Count-Up)		1 COUNT	When screwdriver is backward, the number will be back one	---	---
Ln		---	Automatic learning.	LED keeps flash of light	---
Buzzer	Er Wrong Set-Up	---	Wrong Set-Up, such as Lt＞Ht	Continue to ring and LED red flash. Press select/confirm show Er	---

PROCESS TO SET UP SYSTEM:

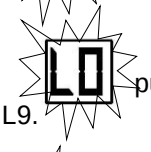
1、 Please connect the cord, turn on the power switch until LED shows number.

2、 Please press SELECT key over three seconds till buzzer making sound, the panel will show , 
to push UP/DOWN to decrease or increase the number, it can set up five units of number.

3、 To press SELECT key, buzzer will sound, the panel will show , 
to push UP/DOWN to decrease or increase number, the maximum can set up 99.
SC: To set up counting number.

4、 To press SELECT, the screen will show , 
push UP/DOWN to increase or decrease number, the maximum can set up 9.9.
At: Automatic set up CLEAR time.

5、 To press SELECT, the screen will show , 
push UP/DOWN to increase or decrease number, the maximum can set up 9.9.
Rc: To set up slow-start time.

6、 To press SELECT, the screen will show , 
push UP/DOWN to increase or decrease number between L0~L9, the maximum can set up L9.
SP：To set up speed of slow start.

7、 To press SELECT, the screen will show , 
push UP/DOWN to increase or decrease number, the maximum can set up 9.9.
Ht:： Stop time.

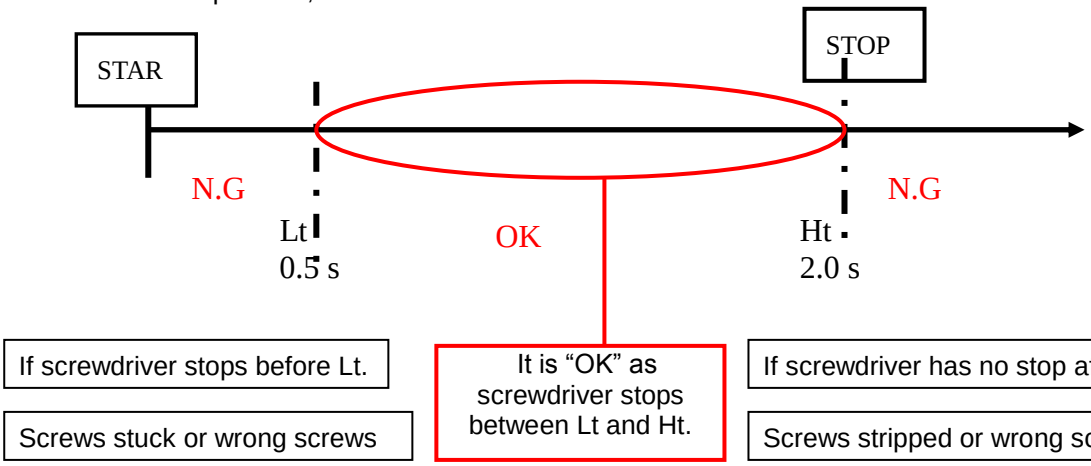
8、 To press SELECT, the screen will show , 
push POWER key , adjust decimals, UP/DOWN to increase or decrease number, the maximum can set up 9.90.
Lt: Set up Detect Start Time."02."means 0.02.

9、To press SELECT, the screen will show  ,  push POWER key  , adjust decimals 00. push UP/DOWN to increase or decrease number, the maximum can set up 9.90.
LL: No times confirmed within set-up time after fastening. “02.” means 0.02

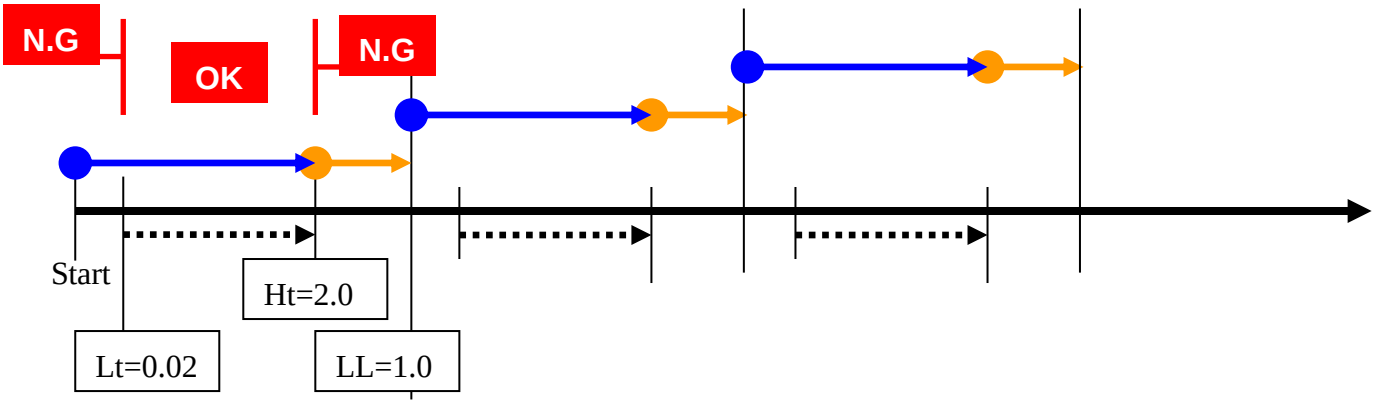
10、To press SELECT  to confirm.

Data Chart：

Ht/Lt mainly set up the period of time. If stop is within the set period, it means OK. In contras, it will be (NG), as stop before Lt or after Ht. and should reconfirm whether wrong screws is taken. More precise requested means more correct Ht/Lt set-up should be. The LT accepts 0.00, but it can be increased or decreased in SELECT.



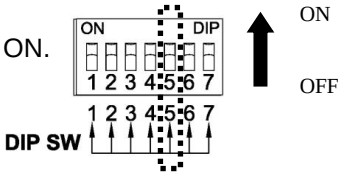
Execute under general pre-set program：



- **If the screwdriver stop time is in dotted line. it is normal fastening. “OK”will be shown.**
- **If the screwdriver stop time is before Lt or over Htstop is before Ht or over Lt, it is “N.G.”.**
- **User can freely adjust Ht. However, if Ht and Lt is closer, it will request more precise.**
- **If the user press the push button of the screwdriver after Ht and Lt setting, it is “N.G”.**

Simulated Learning

1、 The switch mode SW5 change into ON.



※When SW5 change to ON, it will force to enter simulated learning procedure, any function will not work.

2、 When it changes to ON, LED will flash. The user can set whether or not counting screws, starting slow-start. The simulated learning function will be turned on after these necessary condition confirming.



3、 When set up finish, LED will show 0.0 and the user can test to fasten screws, When screwdriver starts, LED will show the count. When screwdriver shut-off, that means time to fasten screws. User can proceed many tests until satisfaction. User can change SW5 switch to OFF, the system will set up Lt/Ht time automatically.

4、 If user does not satisfy number, user can change SW5 to OFF, push SELECT over Seven seconds, then enter menu to change.

System procedure：

SL<SELECT>SC--<SELECT>--At--<SELECT>--Rc---<SELECT>--SP--<SELECT>--Ht--<SELECT>--Lt--<SELECT>LL--<SELECT>CHECK

Grounding

When use Electric Screwdriver Controller, it should be grounded to avoid operator getting electrical shock. This controller is equipped with 3 leading wires and 3 pins of grounding plug to fit for grounding type of outlet. The grounding wire must be connected firmly with power supply equipment for effective grounding result. The leading wire with yellow-green color is a grounding wire. Never attempt to connect this yellow-green color wire on electrified connector, this Controller has built-in grounding wire with electric leakage safety grounding and additionally, the Controller can eliminate ESD static, which is produced by running the electric screwdriver, via grounding wire.

Servicing

Maintenance and Inspection :

1. The controller must be operated in top condition, one day working hour must be not more than eight hours.
2. Please note don't let the controller get over heated, every minute use 10~15 screws to operate.
3. The frequency use of this electric screw driver is over eight hours a day, still it needs periodically testing and treatment. Every 5-6 months.

CAUTION

1. The use of other than genuine KILEWS replacement parts may Result in decreased tool performance and increased maintenance, and may invalidate all warranties.
2. All repairs and maintenance of this tool and its word must be performed by an authorized service center.
3. KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.
4. Repairs should by made only by authorized, trained personnel. Consult your nearest KILEWS authorized service center.
5. It is the responsibility of the employer to place the information in this manual into the hands of the operator.

DO NOT ATTEMPT TO REPAIR THIS ELECTRIC SCREW DRIVER

CAUTION

SAVE THESE INSTRUCTIONS DO NOT DESTROY

操作前請閱讀全部說明
（內附零件分解圖）

警　告

為了安全起見，在使用電動螺絲起子控制器前請詳閱電動螺絲起子控制器操作說明書，且務必依照說明書指示操作，並注意所有的警示

重要安全說明事項

1. 使用電動螺絲起子控制器說明書規定的電壓。
2. 使用電源時請確定電流回路與安全開關裝置，並同時將地線接妥。
3. 電動螺絲起子控制器勿置重物或堆積物品，且保持在適當的溫度與濕度狀態下工作。
4. 勿將電動螺絲起子控制器放在通風不良之室內，或暴露在塵埃和金屬屑中
5. 勿將電動螺絲起子控制器放在高溫潮濕的環境或易燃氣體的地方。
6. 勿將電動螺絲起子控制器裝置在高處，應放于安全、平穩、固定的位置，以防止掉落的危險。
7. 不可用電源線拉扯電動螺絲起子控制器，或將電源線從插座上猛拉開。

注　意

1、此控制器請搭配整組的專用電動起子 SKD-BC 系列起子使用。

2、此控制器請配合 KILEWS　SKD-BC 系列計數器電動起子使用，控制器若搭配非 KILEWS 起子使用，以及使用非 KILEWS 原廠的零配件維修，而造成控制器發生故障或品質不良，導致一切保證失效本廠恕不負責。

3、起子在進行中，若瞬間切換正反開關，機器將會啟動保護程式，起子將停止運轉。

4、起子運轉中，禁止切換高低速開關。

5、電源關閉後,需待 LED 燈熄滅後才可插拔 DC 連接線。

操　作　須　知

1、 操作前請詳細閱讀操作手冊，並且按照安全規範操作此電源供應器。

2、 當插入或拔開起子連接線和電源線之插頭時，需抓緊電纜線之插頭部分。

3、 請將此電源供應器固定，避免因拉扯而造成危險。

4、 請勿靠近油 、化學物質或熱的物體，同時也注意不要讓電纜線在工作中刮磨到銳利的物品。

5、 此型控制器，只能專門供 KILEWS 無碳刷電動起子計數器專用，勿將電動螺絲起子控制器使用於其他機械。

6、 假如控制器過熱，或負載使用電流超過保險絲最大額定電流時，快速型保險絲會自動熔斷，切斷電源，持續跳脫或開關動作不正常時，請立即停止操作，並將電動螺絲起子控制器送回修理。

7、 起子在進行中，若瞬間切換正反轉開關，機器將會啟動保護程式，起子會停止運轉。

8、 請勿任意拆卸電動螺絲起子控制器嘗試自行修復。

9、 不使用時將主要電源開關 ”OFF” ，並且拔掉電源插頭。

10、當 SKP 系列的輸出電壓調整至 Lo 的位置或小於 32V 的位置時，電動螺絲起子的扭力設定請低於刻度 4 位置以下使。

主 要 技 術 參 數

型號	SKP-BC32HL-100N
輸入電壓	AC 100-240V 50 / 60HZ
輸出電壓	DC 32V/ 24V　1.875A
輸出功率	60W
計數次數	1~99
計數模式	正數 / 倒數
接續感應器	ON / OFF
感應開關模式	ON (2 Sensor) / OFF (1 Sensor)
緩啟動時間設定	0.1~9.9 seconds
緩啟動轉速設定	35%~85% L0~L9 Rated speed
偵測停止時間(下限)	0.01-9.90 seconds
偵測停止時間(上限)	0.1-9.9 seconds
警示模式	On/ Off/ FF/ EF with LED and buzzer
自動回復/手動回復	ON / OFF
外部接續輸入	確認開關 / 回復開關
外部接續輸出	OK/ NG/ OK ALL
控制起子轉速	HI / LO；緩啟動
外部尺寸(mm)	200 *130*100
重量(Kg)	
適用之電動螺絲起子	SKD-BC512LF；SKD-BC512PF SKD-BC519L ；SKD-BC519P SKD-BC517LF；SKD-BC517PF
配件	電源線 *1

※搭配 SKP-BC32HL-100N 的起子必須為 6PIN 起子，因此使用者在使用時請確認起子型號必須為”SKD-BC”系列之起子和連接頭為 6PIN。

確認起子步驟：

1、確認型號貼紙 



為 ”SKD-BC”系列起子

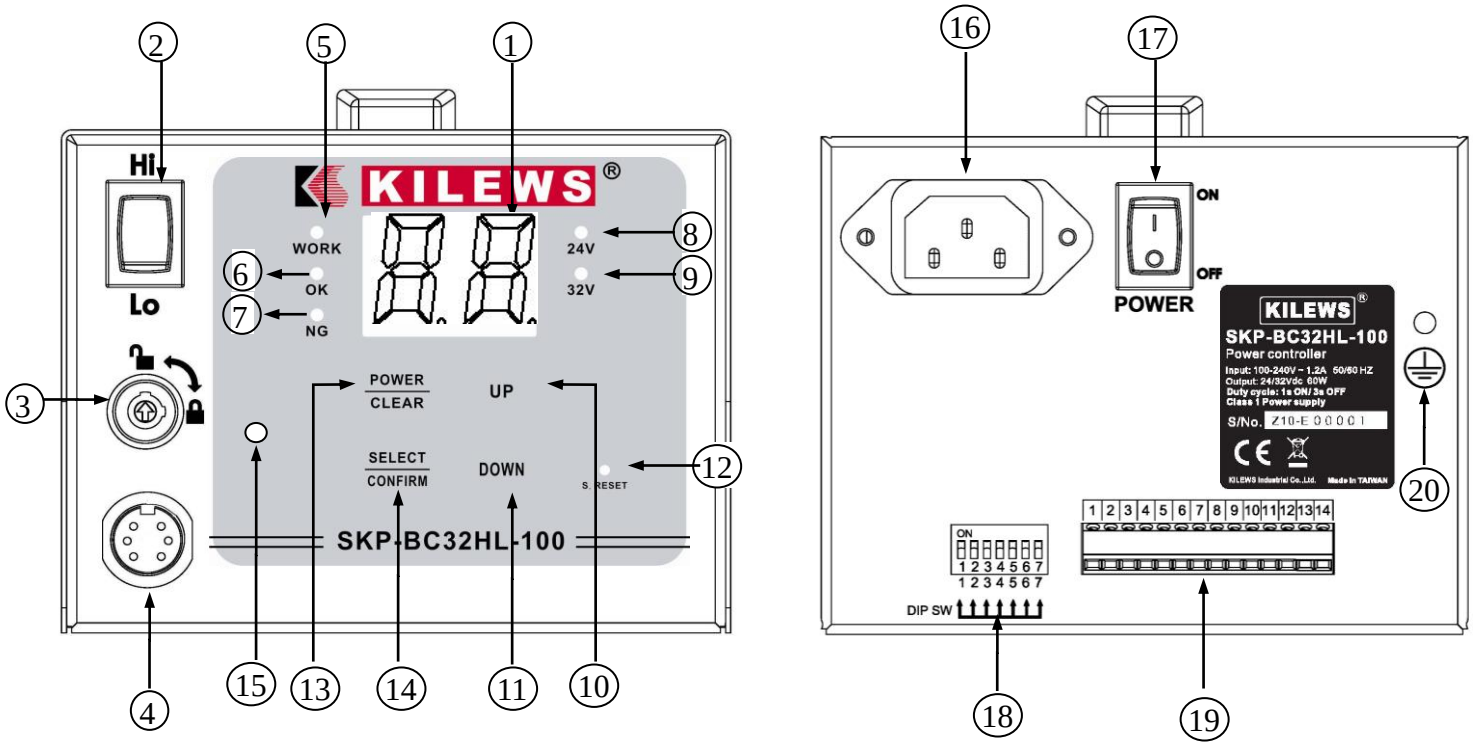
2、確認起子連接頭為 6PIN 

3、確認連接起子與控制器的連接線為 6 芯



面 板 規 格

NO.	名稱	NO.	名稱
1	LED 顯示器	12	內置系統重置鍵
2	HI / LO 開關	13	計數器電源 / 清除鍵
3	鑰匙設定鎖	14	功能選擇 / 確認鍵
4	BC6PIN 連接頭	15	蜂鳴器孔
5	計數器工作燈	16	電源插座
6	OK 燈	17	電源開關
7	N.G 燈	18	指撥開關功能 ＊說明
8	24V 燈	19	I/O 插孔功能 ＊說明
9	32V 燈	20	接地線
10	上選鍵		
11	下選鍵		



面板按鍵功能說明:

<table>
<tr><th>按　鍵</th><th>功　　能　　說　　明</th><th>備　註</th></tr>
<tr><td>POWER
CLEAR</td><td>POWER：計數器電源開關
長按 8 秒左右，系統會關閉計數器與附加功能，7 段 LED 會關閉，
WORK 燈也會關閉。
在關閉計數器的情況下要再回復計數器，可按此鍵即可立即打開計數器功能。

CLEAR：回復開關
起子在計數進行中，計數器計數到一半，使用者需要回復清除，可按此鍵，即可回復計數值</td><td></td></tr>
<tr><td>SELECT
CONFIRM</td><td>SELECT：功能選擇鍵
任何時候長按此鍵 7 秒以上，即進入系統設定畫面，即：
SL----- SC-----At-----RC-----SP-----Ht-----Lt------LL

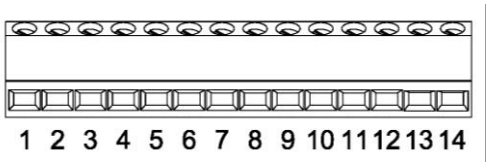
CONFIRM：系統確認鍵
當 DIP SW3　ON 時，每計數到設定的次數時，系統會要求操作人員按此鍵加以確認。</td><td>參考 CONFIRM 模式</td></tr>
<tr><td>UP</td><td>UP：系統設定畫面時　增加數字鍵;工作時　單獨按 UP 鍵　可顯示組別
在使用過程中案此鍵會提示使用者現在第幾組的設定值即：

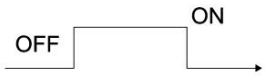
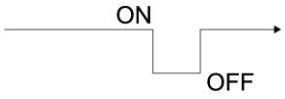
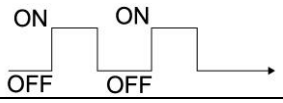
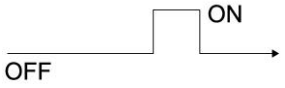
U1：第 1 組設定值　　U4：第 4 組設定值
U2：第 2 組設定值　　U5：第 5 組設定值
U3：第 3 組設定值</td><td></td></tr>
<tr><td>DOWN</td><td>DOWN：系統設定畫面時　減少數字鍵;工作時　單獨按 UP 鍵　可顯示組別
在使用過程中案此鍵會提示使用者現在第幾組的設定值即：

U1：第 1 組設定值　　U4：第 4 組設定值
U2：第 2 組設定值　　U5：第 5 組設定值
U3：第 3 組設定值</td><td></td></tr>
<tr><td>UP
+
DOWN</td><td>UP+DOWN:可以設定　模式選擇功能

<table>
<tr><td>On</td><td>鎖附一個螺絲、工作完成、錯誤操作會發出聲響警示操作人員</td><td>FF</td><td>工作完成 、錯誤操作會發出聲響警示</td></tr>
<tr><td>OF</td><td>錯誤操作會發出聲響 示</td><td>EF</td><td>每鎖附一個螺絲與工作結束會發出聲響警示；錯誤操作不發出聲音</td></tr>
</table>
</td><td></td></tr>
<tr><td>S. RESET</td><td>S.RESET：系統重置鍵
系統若因為電壓或操作因素導致系統不正常，可按此鍵讓系統回復到原廠設定值。</td><td></td></tr>
<tr><td>UP
+
SELECT
CONFIRM</td><td>
<table>
<tr><td>LC</td><td>POWER CLEAR　SELECT CONFIRM　S. RESET</td><td>鎖鍵功能</td></tr>
<tr><td>Un</td><td>POWER CLEAR　SELECT CONFIRM　S. RESET</td><td>解鎖功能</td></tr>
</table>
</td><td></td></tr>
<tr><td></td><td>POWER CLEAR　SELECT CONFIRM　S. RESET　解鍵功能</td><td></td></tr>
<tr><td></td><td>
<table>
<tr><td>HL</td><td>POWER CLEAR　SELECT CONFIRM　S. RESET</td><td>鎖鍵功能</td></tr>
</table>
</td><td></td></tr>
</table>

I/O 插孔功能說明：



No.	名稱	輸入 輸出	內容	信號波形	備註
CN1	V+		DC12V		機器內置輸出電壓 DC 12V
CN2	OK	輸出	鎖完一顆螺絲輸出一個訊號		自動開啟 若要輸入電壓請勿超過 DC 12V/ 10mA
CN3	NG	輸出	當有錯誤操作輸出一個訊號		自動開啟 若要輸入電壓請勿超過 DC 12V /10mA
CN4	OK ALL	輸出	完成設定的螺絲次數輸出一個訊號		自動開啟 若要輸入電壓請勿超過 DC 12V /10mA 根據” At”設定時間決定。
CN5	COM		—		
CN6	GATE		外接確認開關	OFF：  ON： 	輸入一個確認信號，使機器判定被鎖物為有效值。 感應開關：作業上的外接開關，可以接上一個或兩個開關。 **※接任何開關時都必須與 COM (CN5) 銜接**
CN7	CLR		外接 CLEAR 開關。		清除剩餘螺絲次數值，可外接確認開關 **※接任何開關時都必須與 COM (CN5) 銜接**
CN8、9	OK	輸出	鎖完一顆螺絲時 CN8、9 導通		若要輸入電壓請勿超過 ±60V / ±400mA
CN10、11	NG	輸出	當有錯誤操作時 CN10、11 導通		若要輸入電壓請勿超過 ±60V / ±400mA
CN12、13	OK ALL	輸出	完成設定的螺絲次數,則 CN12、13 導通		若要輸入電壓請勿超過 ±60V / ±400mA
CN14	COM		—		

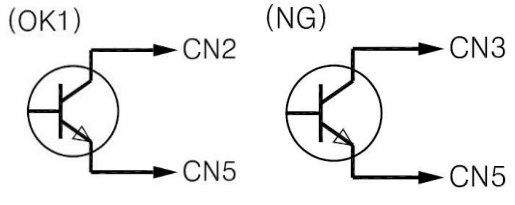
※CN1(V+)和 CN5(COM) 可供給 DC 12V

※若需要其他的 DC 電壓使用者必須自行使用降壓電路來降壓

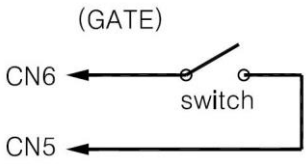
※若使用者需要輸入電壓來驅動警示儀器，輸入電壓請勿超過 DC12V 10 mA。

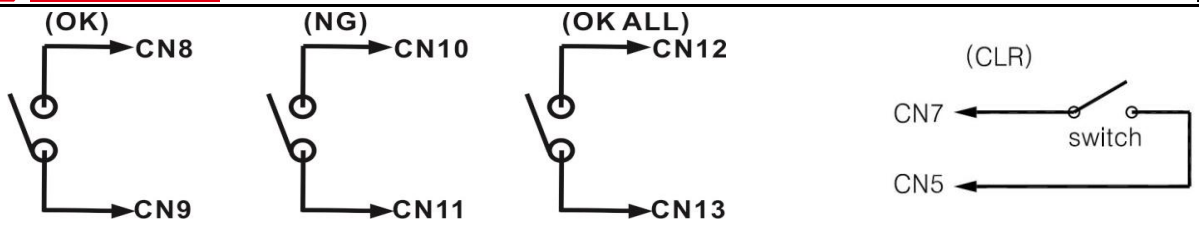
端子接線簡圖：

輸出:



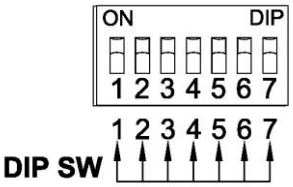
輸入:





指撥開關功能說明：

SW	名稱	OFF	ON
1	計數方式	倒數	正數
2	感應開關	關閉	啟用
3	手動確認方式	自動回復	啟動手動確認
4	開關模式	一個開關確認	兩次開關確認
5	自動學習模式	關閉	啟用
6	組別排列	關閉	啟用
7	反轉回復	僅能計算倒數一顆	可連續計算倒數至所設定的螺絲數量



說明： SW1 ：選擇 ON 則計數螺絲則為正數 即 ：1-----2-----3-----4------5----------1…

OFF 則計數螺絲則為倒數 即：5-----4-----3-----2------1----------5…

SW2 ：感應開關：選擇 ON 則表示需要外接感應開關，SKP-BC32HL- 100 必須按照感應開關的方式來決定起子是否動作。選擇 OFF 則表示不需要外接開關，計數不考慮外接開關來決定動作。

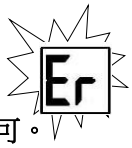
SW3 ：計數回復方式：當計數螺絲到設定次數時，計數器必須回復到原先設定值，若選擇 ON 則表示必須由手動歸零，使用者必須按面板上”SELECT/ CONFIRM”鍵來回復，否則機器沒有確認的情況下電動起子則無法動作。選擇 OFF 則系統自動會自動回復。

SW4 ：開關模式：選擇 ON，表示在外接的 SENSOR 必須要有兩個訊號給 SKP-BC32HL - 100，則表示在作業的製程上被鎖物必須經機台上的 SENSOR 確認有離開工作檯面上，而且新的被鎖物再經由另一 SENSOR 確認有到此作業檯面上，如此兩個確認 SKP-BC32HL - 100 才會動作起子才會啟動。選擇 OFF 則表示只需要一個 SENSOR 來確認，確認被鎖物有離開此工作檯面電動起子才會有動作。

CONFIRM 模式：

代號	說明	備註
C1	為一個開關 SENSOR 確認方式 SW2 (ON)+SW3(OFF)+SW4(OFF)	Output
C2	為二個開關 SENSOR 確認方式 SW2 (ON)+SW3(OFF)+SW4(ON) 當發生錯誤時，SENSOR 需在感應，面板會顯示"Er", 須再按面板"CONFIRM"將"Er"消除	Output
C3	面板上 CONFIRM 手動確認方式 SW3 (ON)+SW2(OFF)+SW4(OFF) 當發生錯誤時，SENSOR 需再感應，面板會顯示"Er",須再按面板"CONFIRM"將"Er"消除	面板 CONFIRM

C4	為一個開關 SENSOR 長 ON 確認方式+面板上 CONFIRM 手動確認方式。SW2(ON)+SW3(ON)+SW4(OFF)	Output +面板 CONFIRM
C5	為二個開關 SENSOR 確認方式 +面板上 CONFIRM 手動確認方式 。SW2(ON)+SW3(ON)+SW4(ON)	Output+面板 CONFIRM
CL	資料回復設定初值	CLEAR

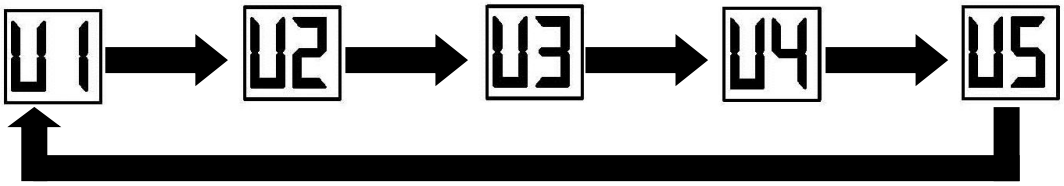
※ 任何外部 CONFIRM 模式若進行到一半被鎖物發生錯誤，系統偵測到不正常時，會顯示 

，並發出警示聲響。回復方式必須再次確認 SENSOR，並再按一次面板上的 CONFIRM 即可。

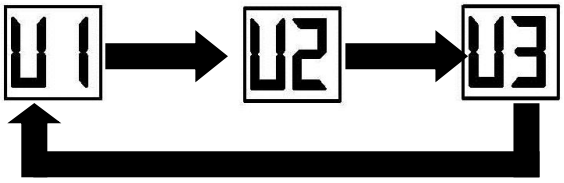
SW5：自動學習模式：計數器計數螺絲的 OK 與 N.G 判斷值都是由 Ht 與 Lt 來設定，此自動學習模式全由電動起子來實際鎖螺絲，自動記憶螺絲從開始到鎖緊的時間，使用者只需將此開關切換到 ON 系統會詢問此工位需要記錄在第幾組數據(SL)，鎖幾顆螺絲(SC)，是否需要自動回復時間設定(At)，是否需要使用緩啟動的設置(Rc)，緩轉速的段數(SP)。

SW6：組別排列模式：暫存記憶體內可以儲存 5 組的數據，使用者可以將此開關 ON，系統將會自動將 5 組的數據做排列，方便使用者作工作上的安排。

SW7：反轉回復：鬆退螺絲計數模式，使用者可以將此開關 ON，系統將可連續計算倒數至所設定的螺絲數量，若開關 OFF，系統僅能計算倒數一顆的螺絲數量。



※若使用只有 3 組的數據，只想讓 3 組數據循環，可以在 U4 的計數次數 SC 設定為”00”，如此在 SW6 切換 ON 時，系統將會自動從 U1~U3 循環



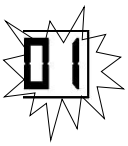
系 統 設 定 方 式

系統程序表單順序：

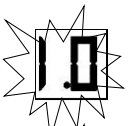
SL<SELECT>SC--<SELECT>--At--<SELECT>--Rc---<SELECT>-SP---<SELECT>-Ht--<SELECT>--Lt--<SELECT>LL--<SELECT>CHECK

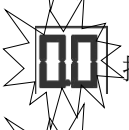
系統設定部驟：

1、請將電源線接好，打開電源開關直到 LED 螢幕顯示數字即可。

2、請按 SELECT 鍵 7 秒以上，蜂鳴器會警示聲響，則螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 5 組。
SL: 數據組別。

3、按 SELECT 鍵，蜂鳴器會警示聲響，則螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 99。
SC：設定計數次數。

4、再按 SELECT，螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 9.9。
At：設定自動回復時間。

5、 按 SELECT，螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 9.9。
Rc：設定緩啟動時間。

6、 按 SELECT，螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 L9。
SP：設定緩啟動轉速

7、 按 SELECT，螢幕會顯示 ，按 UP/DOWN 增加或減少數值，最多可以設定到 9.9。
Ht：設定起子停止時間。

8、 按 SELECT，螢幕會顯示 ，按 POWER 鍵，調整小數點 ，UP/DOWN 增加或減少數值，最多可以設定到 9.90。
Lt：設定起子啟動偵測時間。 “02.”表示 0.02。

功能名稱		設置時間及數值	功 能 解 釋	蜂鳴時間/發光二極體	原廠設定值
SL		01~05	數據組別	---	---
SC		01~99	計數次數	---	05
At		0.1~9.9	自動回復時間 AUTO.T/訊號輸出時間	---	1.0
RC		0.1~9.9	緩啟動時間	---	---
SP		L0~L9	緩啟動轉速 35%~85% L0~L9 Rated speed	---	L0
Ht		0.0~9.9	Hi time 起子停止時間 (起子啟動後在 Ht 設定的時間未停止即顯示錯誤，可用於螺絲滑牙檢測)	5 聲蜂鳴聲與 LED 紅色閃爍	2.0
Lt		0.00~9.90	Lo time 起子啟動後停止時間早於 Lt 設定時間即顯示錯誤，可檢測螺絲沒有鎖定位置。	2 聲蜂鳴聲與 LED 紅色閃爍	0.00
LL		0.01~9.90	起子鎖付完成後再次確認時間	---	0.00
反轉回復		1 COUNT	起子在反轉操作中，計數器數值會回復 1	---	---
Ln		---	自動學習狀態	LED 連續閃爍	---
蜂鳴警報	Er 錯誤設置	---	錯誤設定 如：Lt＞Ht	持續蜂鳴與 LED 紅色閃需按 SELECT/CONFIRM 跳至錯誤處	---

9、按 SELECT，螢幕會顯示 ， 按 POWER 鍵，調整小數點 ，按 UP/DOWN 增加或減少數值，最多可以設定到 9.90。

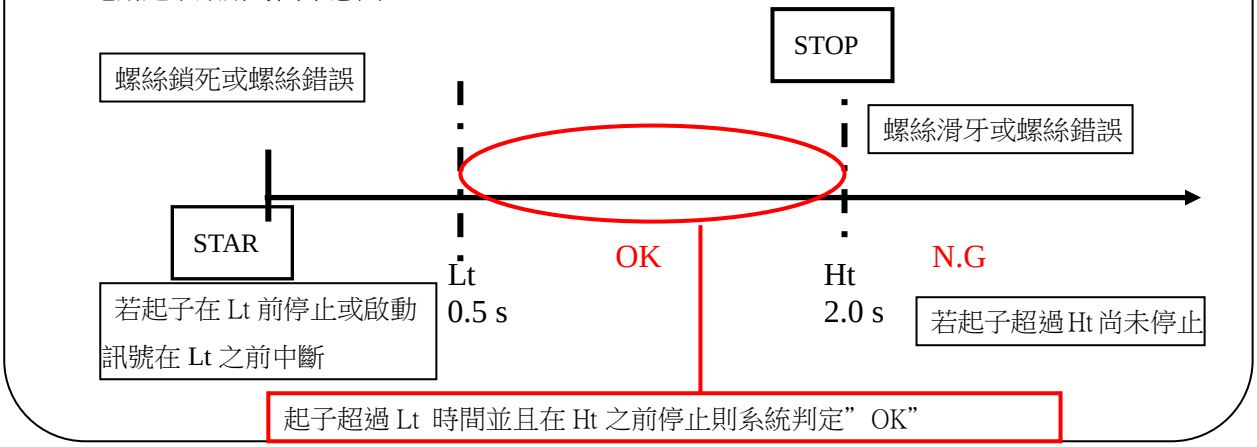
LL：鎖螺絲後設定的時間內多剎車幾次都不做任何判斷。“02.”表示 0.02。

10、按 SELECT  確認設定。

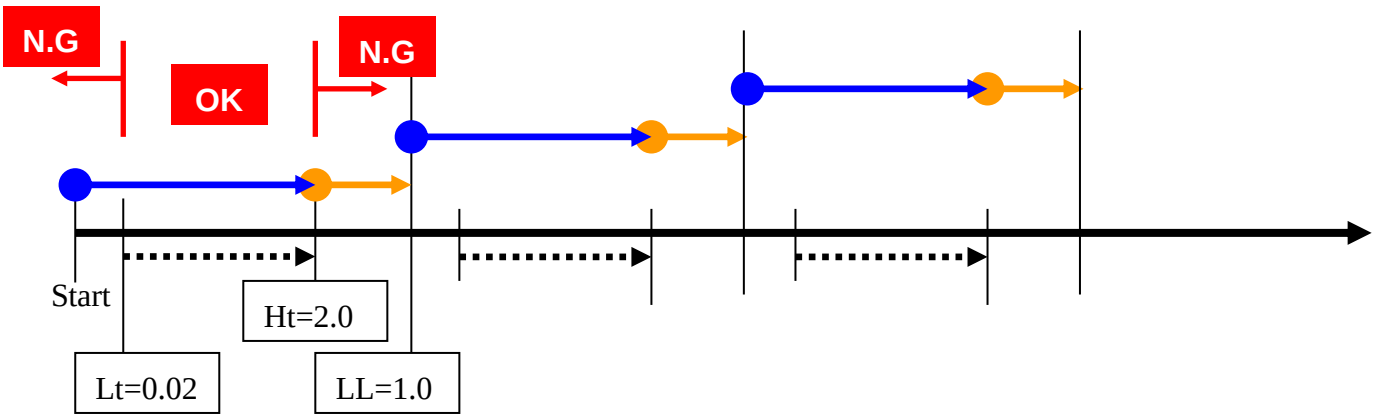
Ht/Lt 示意圖：

Ht/Lt 的時間主要是在設定時間範圍，若在設定的範圍內啟動到停止則顯示 OK 若螺絲在 Lt 設定的時間之前停止或超過 Ht 的時間電動起子還沒停止，則表示螺絲在鎖的過程中不正常(N.G)，需再次確認是否拿錯螺絲或者拿錯被鎖物，Ht/Lt 的時間設定的越精密則表示要求時間越嚴格，此系統 Lt 的時間默認為 0.00，若要修改則可到 SELECT 內容進行增加或減少。

※電動起子啟動時間示意圖：



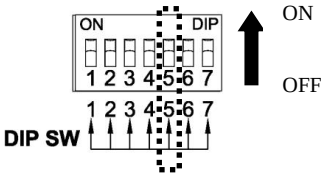
Ht/Lt/LL 時間示意圖：



※ 起子若在虛線區段停止，系統會判定為正常鎖付，顯示 ” OK” 。
※ 若起子在 Lt 時間停止或超過 Ht 時間尚未停止則系統將會判定成 ” N.G” 。
※ 使用者可以自由調整 Lt 的時間，若 Lt 與 Ht 的時間越接近則表示系統會判定需要更精準
※ 當 Ht . Lt 設定後,使用者連續按壓啟動壓板時，則系統將會判定成 ” N.G” 。

自動模擬學習設定步驟

1、 將模式選擇開關 SW5 切換 ON



※將 SW5 切至 ON 時，將強制進入自動模擬學習設定程序，任何功能將不起作用。

2、 切換 ON 時，LED 會閃爍讓使用者設定是否要計數幾顆螺絲、是否需要用到緩啟動，使用者必須先確定這些必要條件才可以進行自動學習。



3、 設定完成後，LED 會顯示 0.0，使用者可以測試鎖螺絲動作，當起子啟動時，LED 會跟著計數，當起子剎車停止動作時，就是螺絲鎖附完成的時間，使用者可以進行多次測試，直到滿意為止，使用者可以將 DIP SW5 開關切至 OFF 狀態，如此系統將自動設定 Lt/Ht 的時間。

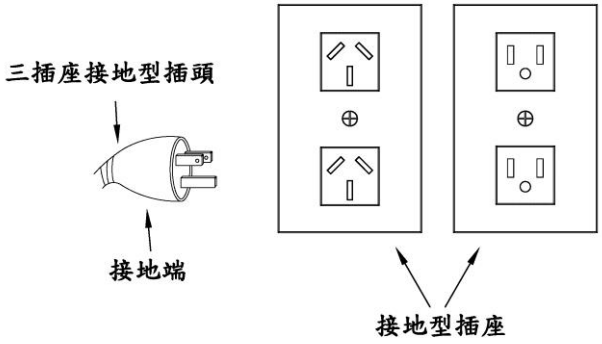
4、 若使用者認為數值尚不理想，再將 DIP SW5 切至 OFF 狀態時，可按住 SELECT 7 秒以上，進去選單畫面進行修改。

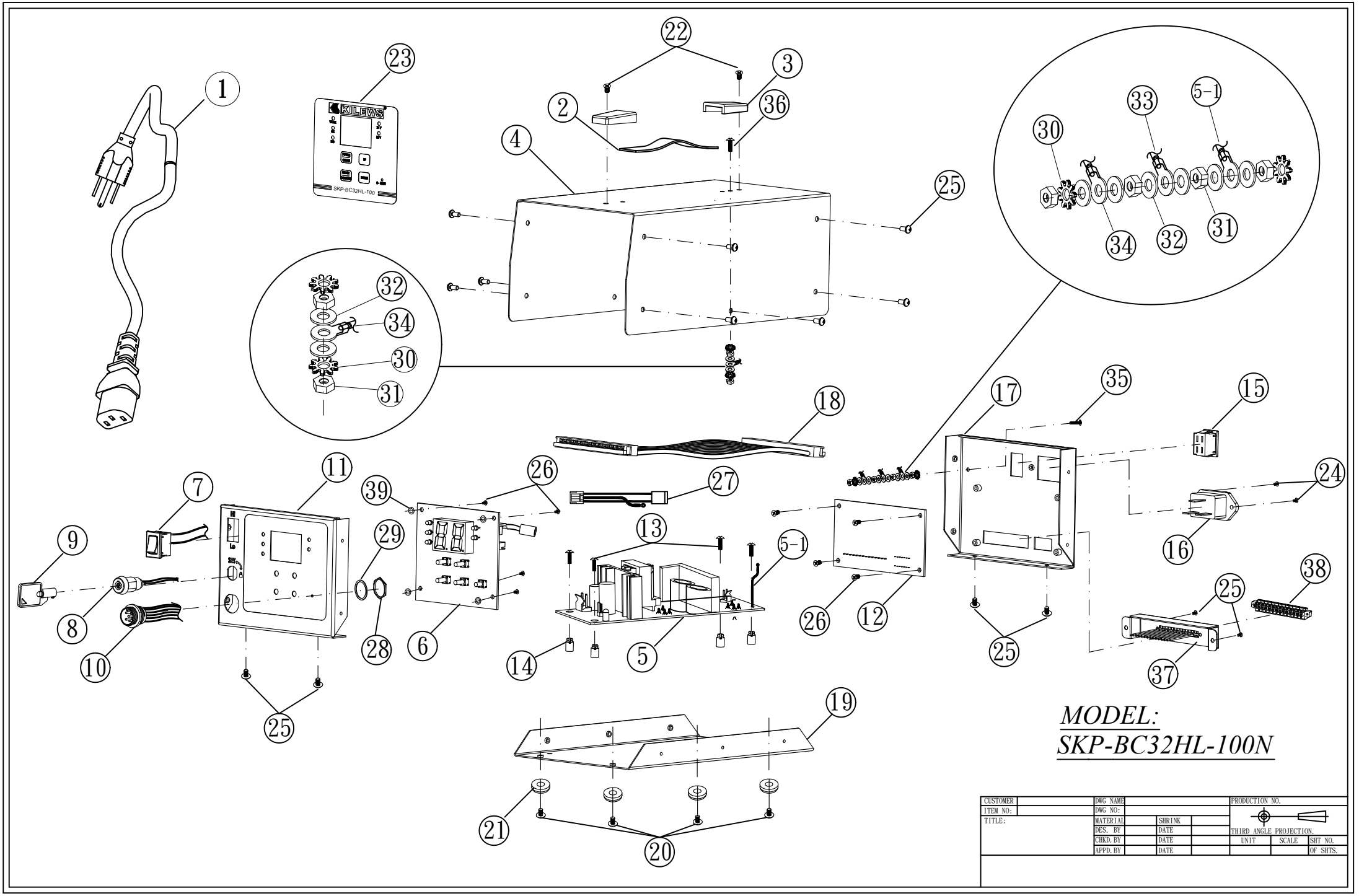
系統程序表單順序：

SL<SELECT>SC--<SELECT>--At--<SELECT>--Rc---<SELECT>-SP---<SELECT>-Ht--<SELECT>--Lt--<SELECT>LL--<SELECT>CHECK

接　地　說　明

電動螺絲起子控制器使用時應接地以免操作者觸電。本控制器配有三條導線及三腳接地型插頭以適合接地型插座用，插座本身的接地線必須確實和電源設備地線相連接才有接地作用。電線黃綠色的導線是接地線。千萬不可將此黃綠色線接在通電的接頭上，此控制器內的接地線除了有漏電安全接地外，還可將起子工作時所產生的 ESD 靜電靠著接地線來接地消除。





MODEL:
SKP-BC32HL-100N

CUSTOMER		DWG NAME				PRODUCTION NO.	
ITEM NO:		DWG NO:					
TITLE:		MATERIAL		SHRINK		THIRD ANGLE PROJECTION.	
		DES. BY		DATE			
		CHKD. BY		DATE		UNIT	SCALE	SHT NO.
		APPD. BY		DATE				OF SHTS.

NO	PARTS NO	PARTS NAME-E	PARTS NAME-C	Q'ty	NO	PARTS NO	PARTS NAME-E	PARTS NAME-C	Q'ty
1	AA50002	America Plug	美插電源線	1	19	P11039-3	Housing-Underside	外殼下蓋	1
	AA50002-1	Australia Plug	澳插電源線	1	20	CH20504-0	Screw 3*5	螺絲 3*5	4
	AA50002-2	Europe Plug	歐插電源線	1	21	CH20110	Rubber Shim	腳墊	4
	AA50002-3	British Plug	英插電源線	1	22	CH20506	Screw 4*12	螺絲 4*12	2
	AA50002-6	India Plug	印插電源線	1	23	YTM0172-2	Sticker-Model	面板貼紙	1
2	P11005	Handle	外殼皮帶	1	24	CH20505	SCREW 3*8	螺絲 3*8	2
3	W50102	Handle Loop Root	皮帶固定座	2	25	CH20504	SCREW 3*5	螺絲 3*5	16
4	P11039	Housung-Upside	外殼上蓋	1	26	CH20505-6	SCREW 3*5	螺絲 3*5	8
5	EG50101-33A-1	Power PCB	電源機板成品	1	27	E31718	CONNECT	3P排插	1
6	EG50111	hypothesis PCB	計數機板成品	1	28	X10068	BOLT	六角螺帽	1
7	P11402-11	Hi / Lo Switch ASS'Y	Hi / Lo 開關半成品	1	29	X10067	WASHER	墊片	1
8	P11404-2	Key Switch ASS'Y	鑰匙開關半成品	1	30	CH20302	WASHER	外齒型滑司 M4	6
9	P11404-1	Key	鑰匙	1	31	CH20401	BOLT M4	螺帽 M4	6
10	PZ50165-9	Connector ASS'Y 6Pin	6芯插座半成品	1	32	CH20301	WASHER	華司 M4	8
11	P11038-1	Housing-Front Side	外殼前蓋	1	33	CH50696	GROUNDING MEANS 220mm	接地線 220mm	1
12	EG50110	Output PCB	輸出機板成品	1	34	CH50695	GROUNDING MEANS 180mm	接地線 180mm	1
13	CH20517	SCREW M3*15 NI	螺絲 M3*15 NI	4	35	CH20501	SCREW 4*25	螺絲 M4*25	1
14	W50115	Spacer Support	間隔柱	4	36	CH20516	SCREW 4*10 NI	螺絲 4*10 NI	1
15	P11401-13	Powe Switch	電源開關	1	37	C50227A	TERMINAL COVER	轉接蓋半成品	1
16	E31702	AC Inlet	電源插座	1	38	E31701-25	Female	母座	1
17	P11039-2	Housing-backside	外殼後蓋	1	39	P11020-3	INSULATING WASHER	絕緣墊片	4
18	E31715	36Pin Plug	36P排插頭	1					